Invacare® ***Etude Plus***

Bed

User manual EN

CE This manual must be given to the user of the product.
Before using this product, read this manual and save for future reference.

INVACARE
Yes, you can.®

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Congratulations

Congratulations on your choice of *Invacare*® ***Etude Plus*** nursing bed. ***Etude Plus*** is the dismantle able nursing bed from Invacare® designed especially for home nursing. ***Etude Plus*** bed provides ease of handling combined with good functionality.

Please read the entire user manual before using the bed.
If you have any questions concerning the use or maintenance, please contact us.

All indications of right and left are based on that a person lying on his back in the bed.

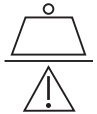
Please note that there may be sections in this user manual, which are not relevant to your bed, since this manual applies to all (on the date of printing) existing modules.

1. General information

1.1 Product use

- The ***Etude Plus*** bed has been developed for domestic care and features a comfortable sitting and lying position for the patient. Furthermore, ergonomical operation for the carer is ensured.
- The ***Etude Plus*** bed is defined to be used according to;
  Application environment 3; Long-term care in a medical area where medical supervision is required and monitoring is provided if necessary and medical electrical equipment used in medical procedures may be provided to help maintain or improve the condition of the patient.
  Application environment 4; Care provided in a domestic area where medical electrical equipment is used to alleviate or compensate for an injury, disability or disease.
- If the patient height exceeds 2 meters it is recommended to use a mattress support extension.
- The max. patient weight: 145 kg, provided that the weight of the mattress and the accessories do not exceed 35 kg. (Safe working load weight: max. 180 kg).
- The bed is not intended for children under 12 years and psychiatric patients.
- Furthermore; Be aware of the limitations of use mentioned in the warnings. (chapter 1.4)

= 145 kg


= 180 kg

- The estimated product life cycle is 7 years for a Etude Plus bed.
- The bed is quipped with loose cables, which have to be exchanged if damaged.
- The control unit, external power supply and motors are protected according to IPx6.
- When the bed is equipped with a HL80 hand control is protected according to IPx4.
- Remove the plug from the mains voltage before moving the bed. The cable must be kept clear off the floor and the castors during transportation.
- Sound level: 45-50 dB (A)
- The adjustment area of the mattress support is: 40-80 cm or alternatively 33-73 cm.
- The angle between the lower leg section and horizontal is adjustable from 0° to 15°.

1.2 Certification

- The ***Etude Plus*** bed is marked with the CE - mark in accordance with directive 93/42/EEC concerning Medical Apparatus.
- The ***Etude Plus*** bed has been tested and approved according to EN 1970:2000
  (Beds provided with tilt function can not be approved according to EN 1970:2000)
- Mechanically the ***Etude Plus*** bed have been approved according to IEC 60601-2-52
- The ***Etude Plus*** bed has been approved and marked with the TÜV mark.
- The ***Etude Plus*** bed has undergone a risk analysis according to EN ISO 14971:2001-03

Invacare® is certified according to DS/EN ISO 9001 and ISO 13485 which ensures that our customers are always supplied with products of uniform quality.

Throughout the entire production process our materials/products are quality controlled by the operators. Additionally, a final test is carried out prior to packaging and shipping.

The operator carrying out the final test, which includes a check of all moveable parts, motors and castors, issues a QA number on the product thereby confirming its quality.
If the product does not correspond to the quality demands of *Invacare*®, it will be discarded.

QA XXX

If, contrary to our expectations, a problem should arise in connection with the delivered product, please contact your *Invacare*® supplier. An address list is shown on the back side at this manual.

Invacare® reserves the right to alter product specifications without prior notice

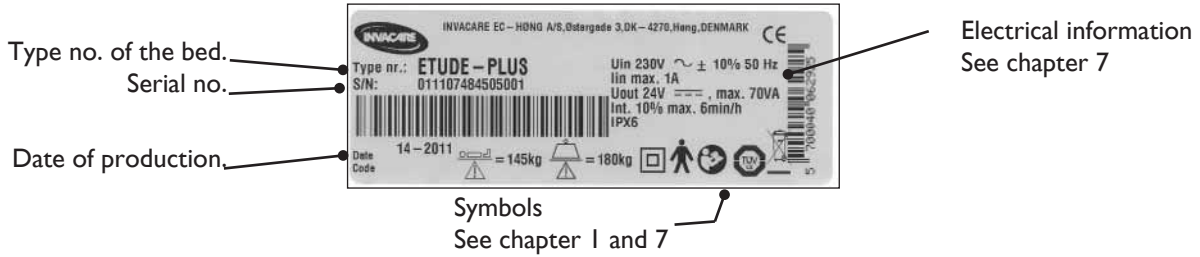
1.3 Labels and symbols

WARNING - This symbol warns of dangers.
If the necessary measurings not are taking, it can result in injury or damage to the bed.

NOTE - This symbol inform about important information and guidelines.

Instruction - Reference to the user manual.

To identify the product please look at the Product-label.



1.4 Safety and Warnings

Invacare® accepts no liability for any use, change or assembly of the product other than as stated in this user manual. Accessories not mentioned in this manual must not be used.

The ***Etude Plus*** bed fulfils all requirements regarding maximum distances.
However, if the bed is used for the care of patients with a small body dimensions, it must be especially noted that there is a risk of such a patient slipping through the openings between the side rails or through the opening between the side rail and the mattress support.

The bed must not be used by patients under 12 years of age, or by patients with body size equivalent to an average 12 years old or smaller.

The bed, in combination with side rails must not be used for persons under 45 kg or under 150 cm height. Either for persons that are restless (spasms) or confused, unless a professional risk assessment has taken place and been accepted. A correctly installed safety cover on the side rails can be used.

When using side rails and the according safety cover, it is essential to ensure correct fitting - **otherwise there is danger of entrapment / suffocation between mattress support, side rail and bed end**.

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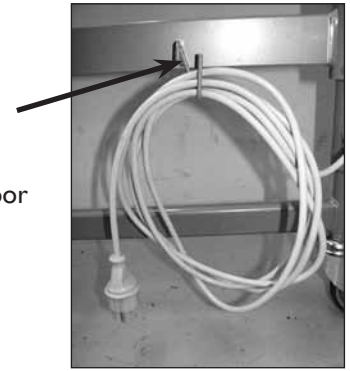
The bed is not intended for use together with MEDICAL ELECTRICAL EQUIPMENT.

Make sure that there are nothing under, over, or near the bed that can limit the movement of the bed or the mattress support, such as furniture, window frames and storage boxes.

Always lower the bed to the lowest position before leaving the patient in the bed unattended.

There is a risk of entrapment of fingers in the bed moving parts.

- It can be dangerous to roll over the mains cable.
- Do not bring mains cable into moving parts.
- Disconnect the plug from the mains before moving the bed.
- The cables must be mounted in such a way that they are kept clear of the floor and do not block the castors.



We recommend to mount the mains cable on the hook for this purpose, see picture.

1.5 Warranty

The warranty covers all material and production defects for 2 years from the date of delivery, provided it can be demonstrated that such defects were present before delivery. All manufacturing faults or defects must be promptly reported *Invacare*® may repair the fault or replace the component. The warranty provided by *Invacare*® does not cover additional costs (transport, packaging, labour, sundry expenses, etc. are for the customer's account).

The warranty does not cover:

Damage caused during transport that is not directly reported to the forwarder at the moment of delivery.
Repairs performed by unauthorized centers and personnel.
Parts subject to normal wear.
Malicious damage or damaged caused by improper use of the bed.

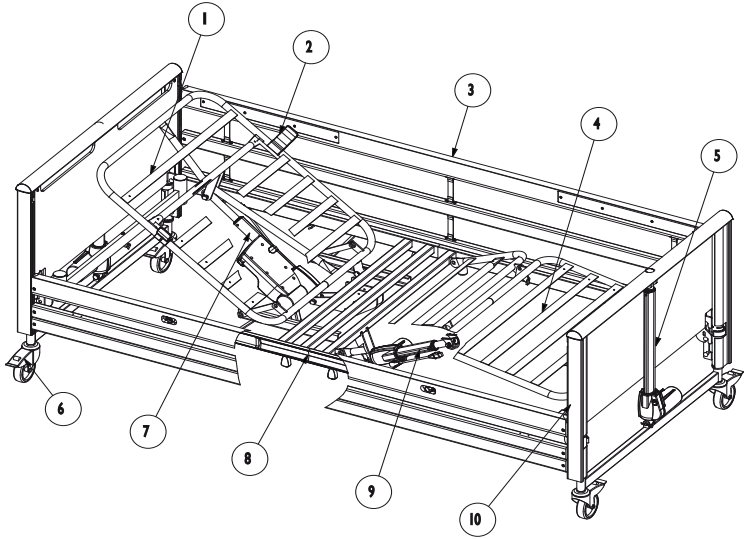
2. Receiving the bed

2.1 Parts of the bed

Check the packaging, if the bed shows any signs of damage upon delivery, please se the terms of delivery.

Follow part must be provided:

1. Mattress support, head end
2. 2 pcs. of mattress support bracket
3. Pair of side rails (wood or steel)
4. Mattress support, foot end
5. Motor for bed end.
6. Castors
7. Motor for head end.
8. Mattress support extension (10 or 20 cm) (Optional)
9. Motor for leg end.
10. Pair of bed ends
11. Hand control (HB80 or HL80)



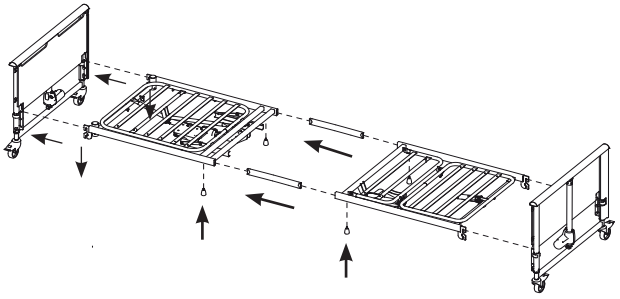
Optional :

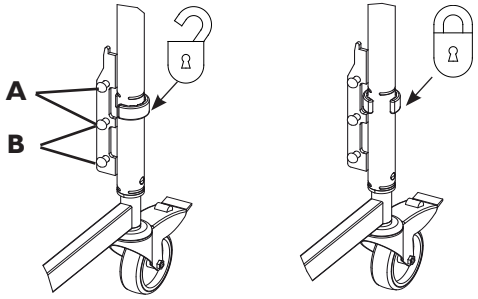
Lifting pole
Transport fitting

2.2 Assembly of the bed

Mattress Support

1. Place the two inserts in the head end of the mattress support. The inserts must be mounted in such a way that one extends further out of the side tube than the other.
2. Loosely screw in the two thumb screws.
3. Push the foot end of the mattress support onto the two inserts.
4. Tighten with two thumb screws.
5. Retighten the two thumb screws at the head end of the top frame.
6. Turn the two mattress handles of the backrest up.
7. Turn the handle of the leg section up.
8. Turn the locking ring* on the bed ends to the position “open”
9. Latch the mattress support to the bed ends and press firmly into position.
10. Make sure that the bed ends are in the same level. It is possible to level the bed in high position **(A)** and low position **(B)**.
11. Turn the locking ring to the position “lock”





* The locking rings locks ensure that the mattress support is not accidentally lifts clear of the bed ends.

Control Box

The control box is latched to the backrest motor.
The control box is provided with a label with symbols showing where to connect the motors’ plugs.

- Backrest motor.
- Thigh section’s motor.
- Bed end motor.
- Hand control.

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2.3 Wiring

In order to prevent the cables from being torn apart when activating the motors it is very important to follow the instructions below.

1. Connect the cables of the bed end motors (head and foot end) directly to the control box.

2. The plug of the thigh motor must be directed through the opening of the supporter for the backrest motor and then be connected to the control box.

3. Connect the mains cable to the 230 V plug.

4. Run the motors of the bed ends to their top position.

5. Place the motor cable of the foot end on the hook at the foot end.

6. Run the backrest to its top position.

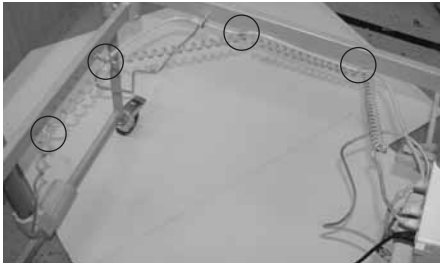
7. Place the head end motor cables on the 4 hooks at the head end.

8. Fasten the safety clip to the control box.

2.

5.

7.

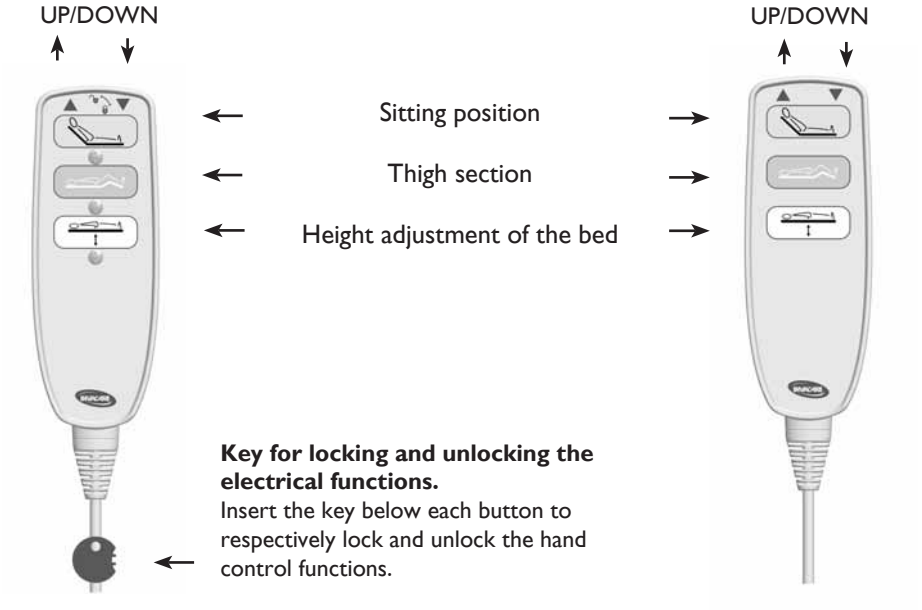


2.4 Dismantle the bed

- Dismantle siderails and lifting pole.
- Bring the bed to its lowest position and adjust all mattress support sections to horizontal position.
- Disconnect the 230 V supply. Roll the cable onto the hook of the head end of the bed.
- Disconnect all the motor plugs from the motors (do not disconnect the backrest motor cable - cable 1).
- Dismantle the safety comb from the control by means of a tool, e.g. a flat headed screwdriver.
- Pull out the cables of the bed end motors and leg section motor.
- Separate the mattress support from the bed ends.
- Divide the head and foot end of the mattress support.

3. Operating the bed

3.1 Operating of the hand control unit.


UP/DOWN
Sitting position
Thigh section
Height adjustment of the bed
UP/DOWN
Key for locking and unlocking the electrical functions.
Insert the key below each button to respectively lock and unlock the hand control functions.

(HL 80 with integrated ACP function)

(HB80)

The beds can be equipped with a hand control that activate the tilt of the mattress support, this hand control can be ordered from *Invacare*® - please refer to the section "Order numbers for accessories".

Medically trained persons must only operate the tilt function - otherwise, there is a risk of injury to the patient´s health.

3.2 Operating the braking castors

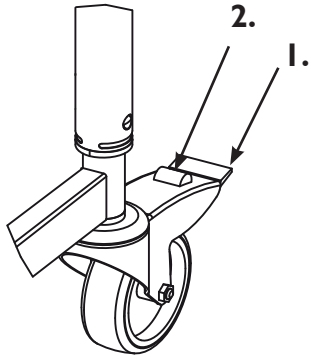
Set-off from the castors might under special conditions appear at different types of absorbing floor covering - including untreated or badly treated floors. In matters of doubt, does *Invacare*® recommended to place a suitable kind of protection between the castors and the floor.

When the bed is positioned correctly, at least one castor at the head end and one castor in the foot end must be braked.

Braking: Step on the pedal. (pos. 1)
Releasing the brake: Step on the release pedal. (pos. 2)

Do not release the brake with the fingers as there can be a risk of trapping.

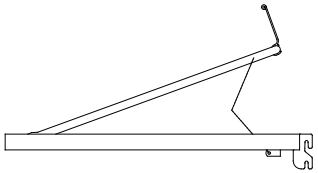
Each of the castors is provided with brakes for both lengthwise and crosswise locking.
The brake is foot-operated.



3.3 Adjustment of leg section

Operate the leg section by lifting the mattress handle.

Up: Lift the mattress handle on the leg section.
Down: Lift the mattress handle on the leg section right up and then lower the leg section.



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4. Accessories

When using side rails you must always make sure that the distance between the bed end and the side rail's handle upper edge is less than 6 cm or more than 32 cm.

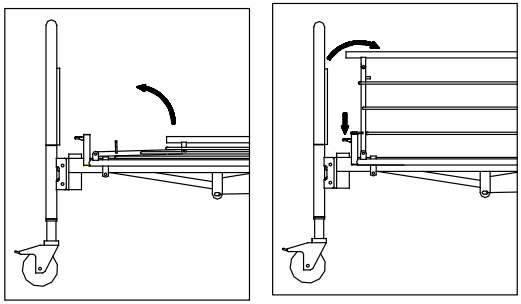
There is a risk of entrapment of fingers on assembly and operation of the side rail.

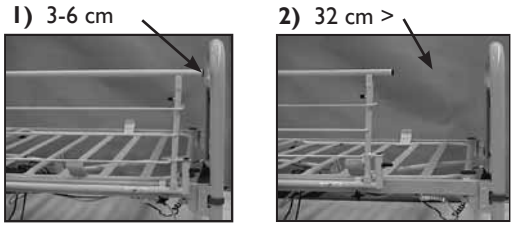
4.1 Mounting / dismounting the steel side rail

The side rail must be mounted with the release system at the head end of the bed.

Mounting
The fork links on the side rail must be mounted according to the instruction on the side rail.
Tighten the side rail with the 2 finger screws.

Dismounting
Loosen the 2 finger screws and remove the steel side rail.





4.2 Mounting / dismounting the Line and Britt V side rails.

Warning! To avoid entrapment/suffocation or accidental fall accidents from the mattress support, it is essential that the gliding shoes be correctly guided into the bed end rails. Adjust the side rail bars by hand, to ensure they are mounted correctly.

Safety! Make sure that the straps between the rails are not damaged or loose.

GB

Mounting

1. Mount one end at a time. Lift the upper bar (the release buttons must face up/outwards) **(A)**.
2. Press the locking pin at the end of the side rail with a finger.
3. All three gliding shoes at the end of the bars are guided into the bed end rail, until the lower bar has been locked, thereby preventing the side rail from falling down **(B)**.
4. Repeat points 2 and 3 when mounting the other end of the side rail.

Dismounting

1. Lower the side rail.
2. Dismount one end at a time. Lift the lower bar, so that the spring pawl is visible.
3. Press the spring pawl with a key or a screwdriver (**C**).
4. Hold the lower bar. Lower the side rail, until all three bars are free of the bed end rail.
5. Repeat points 2 to 4 when dismounting the other end of the side rail.

A

B

C

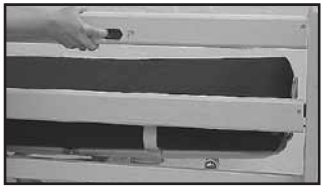
4.3 Operation Line and Britt side rail

The bed end may be equipped to lock the siderail at half height as well as in the top position. Normally the side rail can only be locked in top position.

Up: Pull up the top wooden side rail bar, until the locking pin locks with an audible click.

Down: Lift the top wooden side rail bar and press the two locking rings together. Lower the side rail.

Raise



Release

Lower

4.4 Lifting pole

Position the lifting pole in such a way that the handle extends inwards across the bed. If the lifting pole is used while the handle has been turned away from the bed - the bed can tip when the handle is used.

Mounting

1. Remove the plug from the lifting pole tube at the head end of the bed where the lifting pole is to be placed.
2. Insert the lifting pole into the lifting pole tube and fix with the thumb screw.

Adjusting the height of the lifting pole handle

1. Loosen the cord as shown in **A**.
2. The lifting handle can now be adjusted to the desired height.
3. Press the cord together as shown in **B** and check that the cord is locked in the cord lock by pulling the handle.

A

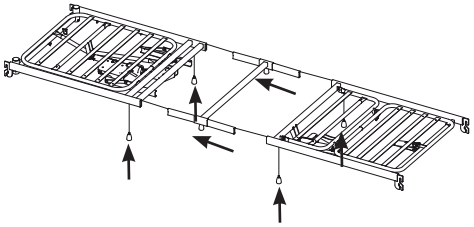
B

The distance between the lifting pole and the mattress

Minimum (at 16 cm mattress)	36-59 cm
Maximum (at 10 cm mattress)	42-65 cm

4.5 Fitting the mattress support extension

Disassemble the bed and remove the inserts.
Mount the mattress support extension on either head or foot end and reassemble the bed.



4.6 Mattress

Safety aspects regarding combination of side rails and mattresses.

In order to obtain the highest possible safety level, when using the bed in combination with side rails, it is important to respect the minimum and maximum measures for mattresses stated in the table.

To mitigate the possibility of the user crawling over the top of the side rail, with the risk of severe injury due to e.g. falling, a minimum vertical distance of 22 cm between the top of the mattress and the top of the side rail are to be respected. The maximum mattress height in combination with a given side rail is stated in the table.

To prevent head entrapment between the inside surface of the side rail and the mattress, with the risk of e.g. suffocation, a safety maximum space has to be respected. When especially very thick mattresses or soft mattresses (low density) or a combination of these it is important to focus on this risk. The minimum width (and length) of mattresses in combination with a given side rail is stated in the table.

	Max. height Mattress	Min. height Mattress	Min. width Mattress	Min. length Mattress
Scala Basic 2	17 cm	10 cm	85,5 - 90 cm	200 cm
Scala Basic Plus 2	17 cm	10 cm	85,5 - 90 cm	200 cm
Scala Medium 2	22 cm	10 cm	85,5 - 90 cm	200 cm
Scala Decubi 2	31 cm	23 cm	85,5 - 90 cm	200 cm
Line side rail, Mattress support platform in low position	22 cm	11 cm	90 cm	200 cm
Line side rail, Mattress support platform in high position	15 cm	5 cm	90 cm	200 cm
Britt V side rail, Mattress support platform in low position	22 cm	11 cm	88,5 - 90 cm	200 cm
Britt V side rail, Mattress support platform in high position	15 cm	5 cm	88,5 - 90 cm	200 cm

4.7 Transport brackets

See instructions at the last page in this User manual.

5. Order numbers for accessories

Side rail

Scala Baic 2 (foldable, 1 pair) 1528930-XXXX
Scala Basic Plus 2 (foldable, 1 pair) 1529745-XXXX
Scala Medium 2 (foldable, 1 pair) 1530436-XXXX
Scala Decubi 2 (foldable, 1 pair) 1530817-XXXX

Britt V wooden (1 pair) 1538458-XXXX

Line 1522786-XXXX
Line extendable 1522787-XXXX

Bed end extra plate

Bed end plate 1551228-XXXX

Mattress support

Mattress support extension - 10 cm 1423993-7032
Mattress support extension - 20 cm 1423994-7032

General

Lifting pole 1542093-XXXX
Transport fitting 1549041-XXXX
Hand control with tilt, HB84 . . . . . 1548934-XXXX
Hand control with tilt, HL84, with integrated ACP function 1548936-XXXX
Backup battery and battery box 1449687-XXXX

If a mattress support extension is used, it is also possible to use an extended side rail.
".XX" + ".XXXX" means that colour/wood type must be indicated, contact sales company for further question.
Please only use original spare parts. Spare parts lists and extra user manuals can be ordered from *Invacare*® or homepage.

6. Cleaning and Maintenance

- Personnel who have received the necessary instructions or training may only perform Service and maintenance of the bed.
- With normal daily use, service must be carried out according to the service schedule after 2 years use and thereafter every second year.
- When relocating the bed, service must be carried out according to the service schedule.

6.1 Cleaning

The bed does not tolerate cleaning in automatic washing plants or the use of water-jet based cleaning equipment.

1. Please make sure the power plug is removed from the socket outlet before cleaning.
2. The bed should be washed down using a wet sponge, cloth or brush.
3. Use ordinary household cleaning agents. Never use acids, alkalines or solvents such as acetone or cellulose thinner.
4. The hand control, motors and control unit may be washed with brush and water, but not with pressurized water.
5. Dry the bed after cleaning.

NB! All plugs must be installed during washing of the bed.

6.2 Maintenance chart

Service and maintenance of the *Etude Plus* must only be performed by personnel who have received the necessary instruction or training. **Bed/Id. no.:** _____					
Date: Initials:					
Visual inspection of all parts of the bed (plastic deformation and/or wear and tear of welded joints).					
Control of all centres of rotation (motors + mattress support parts).					
All motors running without failures (with regular speed and at low noise).					
Check the Rastofix fittings and function.					
Visual inspection of all cabinets for damages.					
Check that mains cable and plug are intact. Check the running of the cable.					
Check all remaining cables for damages. Also check the running of the cables.					
Check of siderails´ fixing and locking/movement.					
Check the wheels (security, braking and free rolling).					

6.3 Maintenance

- Before use
Ensure that all manual and electrical parts functions correctly and are in a secure state.

- After 3 months
Ensure that all manual and electrical parts are functioning, and tighten bolts, screws, nuts, etc.

- Every two year
Service should be performed after the maintenance chart. See chapter 6.2 - Maintenance chart.

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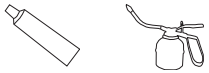
6.4 Lubrication plan

We recommend lubricating the bed according to the following instructions:

1. Points of rotation in mattress support and base frame - lubricate with oil.
2. All of the motors' tension rod - lubricate with oil.
3. All motor bearings and Rastofix fitting - lubricate with oil.



Lubricate with medically clean oil, e.g. KEN-WO 50, order no.: 813239.

NB! The wooden side rails gliding system must not be lubricated with oil - otherwise the wooden bars will move sluggishly. Remove the mains plug from the socket before cleaning.

7. Electrical system

Voltage supply:	230 V ~ ±10%, 50 Hz.
Max. current input:	1 A.
Voltage output:	24 V ~ max. 70 VA.
Intermittent (periodic motor operation):	10%, max. 6 min/h.
Protection class:	IPX6

Insulation class: II, type B.

Alternating current:

Direct current:

The patient is not separated from the ground and the chassis:

Potential equalization:

The bed is not provided with a mains switch, so the mains plug is the only separation from the mains.

7.1 Trouble-shooting the electrical system

Symptom	Possible cause	Remedy
Mains indicator does not light up.	1) Mains not connected. 2) Fuse in the control unit is blown. 3) Control unit defective.	1) Connect mains. 2) Replace the control unit. 3) Replace the control unit.
Mains indicator lights up, but the motor is not running. The relay in the control unit makes a clicking noise.	1) Motor plug not pushed fully into the control unit. 2) The motor is defective. 3) Motor cable is damaged. 4) Control unit defective.	1) Push the motor plug right into control unit. 2) Replace the motor. 3) Replace the cable. 4) Replace the control unit.
Mains indicator lights up, but the motor is not running. No relay sound is heard from the control unit.	1) Control unit defective. 2) Hand control box defective.	1) Replace the control. 2) Replace the hand control box.
Control unit is in order except one direction on one channel.	1) Hand control box defective. 2) Control unit defective.	1) Replace the hand control box. 2) Replace the control unit.
Motor is running, but the spindle does not move.	Motor damaged.	Replace the motor.
The motor cannot lift full load.		
Motor noise, but no movement of piston rod.		
Piston rod operate inwards and not outwards.		

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7.2 Electo Magnetic Compliance (EMC)

Guidance and manufacturer´s declaration – electromagnetic emission		
The medical bed ***ETUDE PLUS*** is intended for use in the electromagnetic environment specified below. The customer or the user of the bed should assure that it is used in such an environment.		
Emissions test	**Compliance**	**Electromagnetic environment - guidance**
RF emissions CISPR 11 (partly)	Group 1	The medical bed ***ETUDE PLUS*** uses RF energy only for its internal function. Therefore, its RF emissions are very low and are not likely to cause any interference in nearby electronic equipment.
RF emissions CISPR 11 (partly)	Class B	The medical bed ***ETUDE PLUS*** is suitable for use in all establishments including domestic establishments and those directly connected to the public low-voltage power supply network that supplies buildings used for domestic purposes.
Harmonic emissions IEC 61000-3-2	Class A	
Voltage fluctuations / flicker emissions IEC 61000-3-3	Complies	

Guidance and manufacturer´s declaration – electromagnetic immunity			
The medical bed ***ETUDE PLUS*** is intended for use in the electromagnetic environment specified below. The customer or the user of the bed should assure that it is used in such an environment.			
Immunity test	**IEC 60601 test level**	**Compliance level**	**Electromagnetic environment - guidance**
Electrostatic discharge (ESD) IEC 61000-4-2	± 6 kV contact ± 8 kV air	± 6 kV contact ± 8 kV air	Floors should be wood, concrete or ceramic tile. If floors are covered with synthetic material, the relative humidity should be at least 30 %.
Electrostatic transient / burst IEC 61000-4-4	± 2 kV for power supply lines ± 1 kV for input/output lines	± 2 kV for power supply lines ± 1 kV for input/output lines	Mains power quality should be that of a typical commercial or hospital environment.
Surge IEC 61000-4-5	± 1 kV differential mode ± 2 kV common mode	± 1 kV differential mode ± 2 kV common mode	Mains power quality should be that of a typical commercial or hospital environment.
Voltage dips, short interruptions and voltage variations on power supply input lines IEC 61000-4-11	< 5 % U_T (>95 % dip in U_T) for 0,5 cycle 40 % U_T (60 % dip in U_T) for 5 cycles 70 % U_T (30 % dip in U_T) for 25 cycles < 5 % U_T (>95 % dip in U_T) for 5 sec	< 5 % U_T (>95 % dip in U_T) for 0,5 cycle 40 % U_T (60 % dip in U_T) for 5 cycles 70 % U_T (30 % dip in U_T) for 25 cycles < 5 % U_T (>95 % dip in U_T) for 5 sec	Mains power quality should be that of a typical commercial or hospital environment. If the user of the medical bed ***ETUDE PLUS*** requires continued operation during power mains interruptions, it is recommended that the medical bed ***ETUDE PLUS*** be powered from an uninterruptible power supply or a battery.

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Immunity test	**IEC 60601 test level**	**Compliance level**	**Electromagnetic environment - guidance**
Power frequency (50/60 Hz) magnetic field IEC 61000-4-8	3 A/m	3 A/m	Power frequency magnetic fields should be at levels characteristic of a typical location in a typical commercial or hospital environment.
NOTE	U_T is the a. c. mains voltage prior to application of the test level.		

			Portable and mobile RF communications equipment should be used no closer to any part of the EQUIPMENT medical bed ***ETUDE PLUS*** including cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter. Recommended separation distance
Conducted RF IEC 61000-4-6	3 V	3 V	$d = [\frac{3,5}{V_1}]\sqrt{P}$
Radiated RF IEC 61000-4-3	3 V/m	3 V/m	$d = [\frac{3,5}{E_1}]\sqrt{P}$ 80 MHz to 800 MHz $d = [\frac{7}{E_1}]\sqrt{P}$ 800 MHz to 2,5 GHz

Immunity test	**IEC 60601 test level**	**Compliance level**	**Electromagnetic environment - guidance**
			where *p* is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer and *d* is the recommended separation distance in metres (m).[b] Field strengths from fixed RF transmitters, as determined by an electromagnetic site survey,[a] should be less than the compliance level in each frequency range.[b] Interference may occur in the vicinity of equipment marked with the following symbol:

NOTE 1 At 80 MHz and 800 MHz, the higher frequency range applies.
NOTE 2 These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.

[a] Field strengths from fixed transmitters, such as base stations for radio (cellular/cordless) telephones and land mobile radios, amateur radio, AM and FM radio broadcast and TV broadcast cannot be predicted theoretically with accuracy. To assess the electromagnetic environment due to fixed RF transmitters, an electromagnetic site survey should be considered. If the measured field strength in the location in which the medical bed ***ETUDE PLUS*** is used exceeds the applicable RF compliance level above, the medical bed ***ETUDE PLUS*** should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as reorienting or relocating the medical bed ***ETUDE PLUS***.

[b] Over the frequency range 150 kHz to 80 MHz, field strengths should be less than $[V_1]$ V/m.

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Recommended separation distances between portable and mobile RF communications equipment and the medical bed *ETUDE PLUS*.

The medical bed ***ETUDE PLUS*** is intended for use in an electromagnetic environment in which radiated RF disturbances are controlled. The customer or the user of the medical bed ***ETUDE PLUS*** can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF communications equipment (transmitters) and the medical bed ***ETUDE PLUS*** as recommended below, according to the maximum output power of the communications equipment

Rated maximum output of transmitter W	Separation distance according to frequency of transmitter **m**		
	150 kHz to 80 MHz $d = [\frac{3,5}{V_1}]\sqrt{P}$	**80 MHz to 800 MHz** $d = [\frac{3,5}{E_1}]\sqrt{P}$	**800 MHz to 2,5 GHz** $d = [\frac{7}{E_1}]\sqrt{P}$
0,01	0.12	0.12	0.23
0,1	0.37	0.37	0.74
1	1.17	1.17	2.33
10	3.69	3.69	7.38
100	11.67	11.67	23.33

For transmitters rated at a maximum output power not listed above the recommended separation distance d in metres (m) can be estimated using the equation applicable to the frequency of the transmitter, where P is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer.

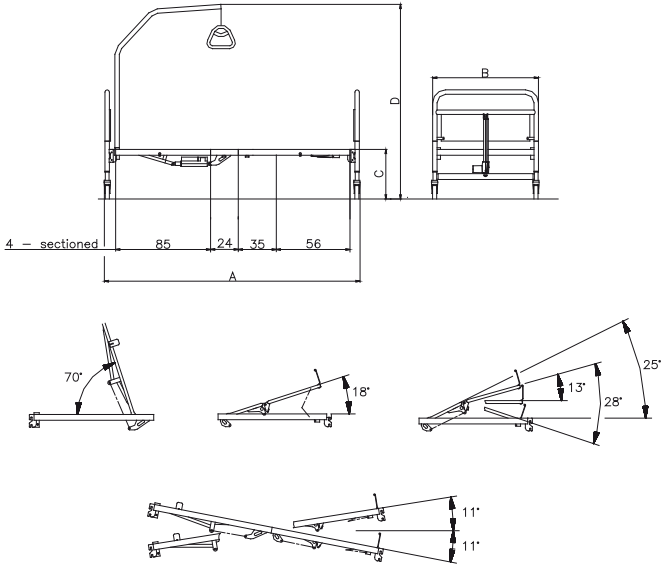
NOTE 1: At 80 MHz and 800 MHz, the separation distance for the higher frequency range applies.

NOTE 2: These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.

8. Technical specifications

8.1 Dimensions

All measurements are stated in cm. All angles are stated in degrees.
All measurements and angles are stated without tolerances.
Invacare® reserves the right to change the stated measurements and angles.



Etude Plus		
	Low	High
A	219	219
B	102	102
C	33-73	40-80
D	158-198	165-205

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8.2 Transportation and storage conditions

Environment Conditions		
Temperature	**Relative humidity**	**Atmospheric pressure**
Storage		
From - 10° C To + 50° C	20% 75%	700 hPa 1060 hPa
Operating		
From + 5° C To + 40° C	20% 75%	700 hPa 1060 hPa
Be aware that when a bed has been stored under low temperatures, it must adjusted to operating conditions before use.		

8.3 Weights

Etude Plus bed end with extra plate - 1 piece	20,6 kg
Etude Plus bed end without extra plate - 1 piece	17,9 kg
Mattress support, standard head end	24,1 kg
Mattress support w/autoregression, head end	27,9 kg
Mattress support w/autoregression, head end without acuator and control box	24,1 kg
Mattress support, foot end.	17,4 kg
Scala Basic 2 side rail - 1 piece	7,4 kg
Lifting pole.	4,2 kg
Mattress support extension (10 cm)	3,2 kg
Mattress support extension (20 cm)	5,5 kg

Etude Plus standard bed, complete, excluding accessories	77,3 kg
Etude Plus auto-regression, complete, excluding accessories	82,7 kg

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9. Waste disposal

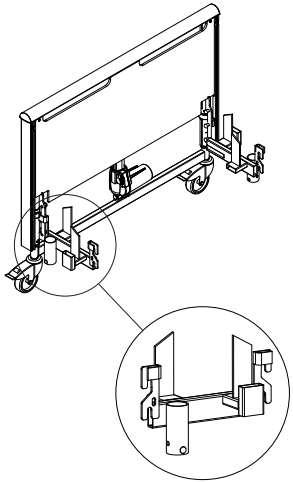
This product has been supplied from an environmentally aware manufacturer that complies with the Waste Electrical and Electronic Equipment (WEEE) Directive 2002/96/CE.
This product may contain substances that could be harmful to the environment if disposed of in places (landfills) that are not appropriate according to legislation.
The »crossed out wheelie bin« symbol is placed on this product to encourage you to recycle wherever possible.

Please be environmentally responsible and recycle this product through your recycling facility at its end of life.

All wooden parts must be dismantled and sent for incineration.
All electric parts must be dismantled and be disposed of as electric components.
Plastic parts must be sent for incineration or recycling.
Steel parts and castors must be disposed of as waste metals.
Waste disposal must comply with the laws and regulations pertaining waste handling in each country.

Transport brackets - Transportsicherung - Transporthaken

1.



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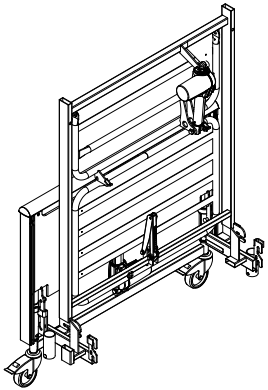

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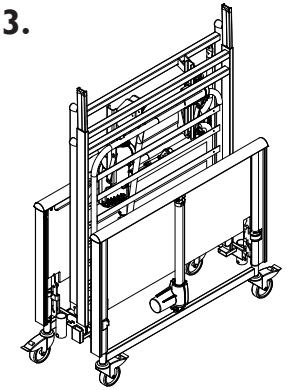

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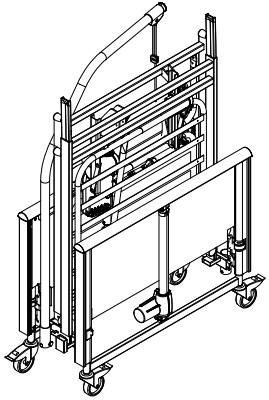

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EN ISO 13485

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